Death Valley Ranch Power House
Death Valley National Monument
Inyo County
California

HABS No. CA-2257 E

PHOTOGRAPHS

REDUCED COPIES OF MEASURED DRAWINGS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Buildings Survey
National Park Service
Department of the Interior
Washington, D.C. 20013-7127

HABS CAL, 14-DVNM, 1-E-

HISTORIC AMERICAN BUILDINGS SURVEY

DEATH VALLEY RANCH POWER HOUSE
(Scotty's Castle, Power House)

HABS No. CA-2257 E

Location: National Park Service Route 5 (commonly known as the North Highway), 25 miles west of the junction of US Route 95 with Nevada State Route 267 (commonly known as Scotty's Junction), Death Valley National Monument, Inyo County, California.

Present Owner: National Park Service.

Present Use: Electrical generating facility (limited to powering night lighting for Ranch); exhibit space for the various generators used at the Ranch.

Significance: The Power House reflects Albert Johnson's pre-occupation with new technologies and his desire to make the Ranch as self-sufficient and as comfortable as possible. The Power House was originally designed to house three separate electrical generators; the Cospel Foundation added two new ones that supplanted the original three. This facility generated all electricity until 1964, when commercial power was brought to the Ranch.

PART I. HISTORICAL INFORMATION

Note: For general information on the Death Valley Ranch complex, see HABS No. CA-2257.

A. Physical History:

1. Date of Erection:

By January 1929-Power House designed by MacNeilledge.[1]
March 1929-Plans left at the Ranch and excavation begun.[2]
November 1930-The Fairbanks-Morse diesel generator operational.[3]

2. Architect - Charles Alexander MacNeilledge
Delineator - Martin de Dubovay

3. Original and Subsequent Owners:

Albert Mussey Johnson (1930-1948)
Gospel Foundation (1948-1970)
National Park Service (1970-Present)

4. Builder, Electrician, Manufacturer, etc:

General Superintendent: M. Roy Thompson

Building Superintendent: H.B. Brown (1929-1930)
C.C. Johnson (1930-1931)

First electrical system designed by Albert M. Johnson.
Second electrical system designed by Raymond B. Coodrich.

Manufacturers of the three original electrical generators:

7-Kilowatt Direct-Current Generator - General Electric, Schenectady, New York.

30-Kilowatt Direct-Current Generator - Fairbanks-Morse and Co., Los Angeles, California.

110-Volt Direct-Current Type SK Generator - Westinghouse, East Pittsburgh, Pennsylvania.

Manufacturers of the two generators added later by the Gospel Foundation:

15-Kilowatt Direct-Current "Caterpillar" Generator - General Electric, Schenectady, New York.

75-Kilowatt Alternating-Current Generator - Delco, Dayton, Ohio.

Manufacturers of Storage Batteries - Edison Storage Battery Supply Company, Orange, New Jersey.

5. Original plans and construction: From 1926 until recently Death Valley Ranch produced its own power. At first individual Pelton Water Wheels, varying in size from 6" to 18", were distributed to specific locations throughout the grounds that required power. At least two, one in the shed by the garage and another in the Annex garage, ran power equipment for construction (i.e. bandsaw). Two others, one in the basement of the Main House and one in the Commissary,[4] ran washing machines. Some of these locations retain their original Peltons and the concrete pedestals upon which they stood.

As the demands for power grew, Johnson decided to connect an 18" Pelton Water Wheel, the largest he had at the Ranch, to a seven-kilowatt General Electric direct-current generator and in December 1926 Johnson designed the Ranch's first electrical system.[5] The generating facility became known as the "Power Room" and was located just west of the Commissary garage. The generator

charged a series of one hundred six-volt Edison Storage Batteries that in turn provided electricity to the Main House. The batteries were stored underground in a tunnel just west of the Main House.

With the considerable electrical demands of the new Welte-Mignon theatre organ, J.C. Deagan Chimes System, and the impending electrification of several additional structures to be provided for, Johnson decided to construct an entirely new facility that would house larger diesel-fueled generators. Compared to Peltons, diesel generators were much more powerful, but they also produced a great deal of smoke and noise and it was best to distance them from the actual living areas. The bluff 100 feet west of the Main House was chosen as the site for the "New Power House."

Two new generators were purchased; a 30-kilowatt Fairbanks-Morse diesel generator and a Westinghouse Type SK 110-volt direct-current generator. In addition all the six-volt batteries were exchanged with the manufacturer for an equal number of twelve-volt batteries.[6]

Excavation for the new Power House was accomplished at first with mules and wagons and began in March 1929. The bluff west of the Main House consisted almost entirely of solid rock and this part of the work proceeded slowly. Excavation continued in this fashion for at least six months, when all construction was suspended temporarily due to the summer heat. The tremendous amount of excavation that remained for the Power House, as well as several other projects soon to follow (i.e. Tunnels, Swimming Pool, Entrance Gates), served as a justification for Thompson to purchase a Steam-Powered Shovel in November 1929.[7] It was at this point that manual excavation was for the most part abandoned at Death Valley Ranch.

The Power House is made almost entirely of concrete and was formed in three separate phases. The actual Power Room, where the electrical generators and switchboards were housed, along with the main entry vestibule, were poured first. The retaining wall and the outside stairway to the south followed next. The hexagonal Pavilion up the hill and behind the Power Room was the last portion of the project completely formed. The Pavilion served as a unifying link between the Power House and Chimes Tower. It was designed as a stopping point for those walking up the hill to the Chimes Tower and as an architectural counterpoint for the main body of the Power House. Original designs for the Pavilion included a smooth white plaster on the interior similar to that of the Power Room that was left unfinished. Plans also called for low retaining walls to extend north and south of the Chimes Tower. Permanently discontinued shortly after they were begun, they were meant to define a fully landscaped area directly above the Power

House and surrounding the Chimes Tower to be formally known as the "Plateau." This too was never completed.

From 1929 until 1930, a series of new electrical plans to distribute power throughout the entire complex were prepared by a professional electrician, Raymond B. Goodrich. By November 1930 the Fairbanks-Morse generator was operational. The electricity it and the other two original generators produced eventually powered every building at the Ranch.[8]

6. Alterations and additions: Two diesel generators were added after 1948 by the Gospel Foundation. The first was a 15-Kilowatt Direct-Current "Caterpillar" manufactured by General Electric. This was followed by a 75-Kilowatt Delco Alternating-Current Generator. It was probably at this later juncture that most of the Ranch was rewired to accommodate the change in power supply. In 1964 commercial power was brought to the Ranch and the use of all the generators was for the most part abandoned. This later change in the power supply might also have required another complete rewiring.[9]

PART II. ARCHITECTURAL INFORMATION

A. General Statement:

1. Architectural Character: The Power House stands apart in style from almost all the others at the Ranch. Its "fortress-like" qualities (i.e. false rustication and castellated roofline) and Gothic elements (i.e. window and door treatments, flying buttresses) indicate a clear departure from the "Spanish Mediterranean" of almost all the other structures.[10] In this case the stucco exterior finish is a single shade of brown instead of the brown and beige tones found almost everywhere else.

It is similar, however, to the other buildings in its almost complete reliance upon concrete as the basic structural material and stucco as the exterior finish.

2. Condition of Fabric: Poor. The exterior stucco has deteriorated badly and large sections of it have fallen from the building, exposing the raw concrete underneath.

Only the generator attached to the Pelton Water Wheel is still functioning and is now used on a limited basis. The other four are no longer in working order.

B. Description of Exterior:

1. Over-all dimensions:

Power Room: 31'-11" x 16'.
Vestibule: 11' x 13'-7".
Outside Stairway: 5' wide.
Pavilion: Hexagonal in plan, it measures 15' across.

2. Foundations: Concrete.

3. Wall construction, finish, color: The exterior walls are all made of concrete and have been formed to simulate random ashlar masonry. A light brown textured stucco has been applied as an exterior finish. The upper northeast corner of the structure supports a small observation platform that contains within it a ventilation shaft. The original plans show that the shaft was to be fitted with interior and exterior movable louvers. The one on the interior remains but is frozen shut because of rust. If an exterior louver was also built it is now missing.

Flying buttresses made of concrete support the wall at several points along the east facade. An exterior stairway passes underneath and climbs along the south half of the east facade towards the Pavilion. Electric lanterns are placed underneath the buttresses to light the stairway at night. A smaller flight of stairs continues on the uphill side of the Pavilion and out upon the "Plateau" - an open area directly above the Power House and surrounding the Chimes Tower.

A smaller retaining wall follows the road that leads to the Entrance Gates. It splits from the larger retaining wall at the point where the larger wall begins to curve toward the Pavilion.

4. Structural system: Most of the structure has been formed of reinforced concrete. The retaining wall was constructed of hollow tile that was covered with concrete.

5. Openings:

a. Doorways and doors:

Power House: The main entrance is centrally located and forms a large Gothic arch. It is surrounded by simulated voussoirs flush with the surface of the wall. The double-leaf wooden-grill door is made of "antiqued" wood reinforced at the crossings with large decorative metal studs. A large metal lantern is suspended from the top of the arch supported by a pair of chains and a metal brace shaped like a snake.

Pavilion: The two large entries resemble the shape, form and treatment of the central entrance to the Power House, but are narrower in width. The doors are similar in style and construction to that of the main entry but have only a single leaf.

b. Windows:

Power House: There are two evenly spaced lancet windows on the north side of east facade and two centrally paired together on the north. All four have steel sashes, tripartite frosted glass and are protected on the outside with metal grillwork.

Pavilion: The windows of the Pavilion are similar in shape to that of the Power House, except the two facing uphill to the west are much longer and the two facing downhill to the east are truncated. They have no glass but do have similar metal grills.

6. Roof:

a. Shape, covering:

Power Room: Flat concrete slab roof with two multiple glass-block skylights with brass frames directly over the Power Room.

Pavilion: Flat concrete slab roof.

b. Cornice: The roofline features a castellated parapet wall.

C. Description of Interior:

1. Floor plans: See measured drawings.

2. Flooring:

Power House: The Power Room has a plain concrete slab floor painted red with some built-in chases for pipes and conduits. The chases are covered with wooden slabs sturdy enough to be walked upon. The vestibule floor has been laid with red hexagonal quarry tile.

Pavilion: The floor has been laid with red hexagonal quarry tile with the center, stairway landing and border decoratively imprinted with color designs.

3. Wall and Ceiling Finish:

Power House: The power room has a smooth white plaster finish. The lower third of the walls has been painted red. The north wall has two levels of shelving intended for a series of batteries. The entrance vestibule has a textured stucco finish similar to the exterior of the Power House and has a false doorway directly opposite the main entrance.

Pavilion: Bare concrete walls.

4. Doorways and doors: The door separating the Power Room from the vestibule has been replaced with the lower half of a plywood dutch door, leaving the upper half open. This allows visitors to see the power equipment but prevents their access. A smaller door made of "antiqued" slab wood leads to the tunnel system below.

5. Decorative Features:

Power House: Both the vestibule and Power Room have metal electric fixtures attached to the center of the ceiling.

Pavilion: A large electric lantern with amber glass hangs by a metal link chain from the center of the ceiling.

D. Site:

The Power House was built into the side of a rocky bluff halfway between the Main House and the Chimes Tower and approximately 100 feet from each. The Main Entrance of the Power House is directly in line with the central axis that runs through most of the Ranch and terminates to the west with the Tower. Because of the alignment, from certain points to the east, the Power House and Chimes Tower read as a single building.

PART III. PROJECT INFORMATION

The Scotty's Castle Recording Project at Death Valley National Monument, California, was undertaken during the summers 1987-89 by the Historic American Buildings Survey (HABS) division of the National Park Service, and co-sponsored by the Western Regional Office of the National Park Service. Principals involved were Robert J. Kapsch, Chief of HABS/HAER; Kenneth L. Anderson, AIA, Chief of HABS and project leader in 1987 and 1988; and Paul D. Dolinsky, Principal Architect of HABS and project leader in 1989.

The recording teams were supervised in the field by Marlys B. Thurber in 1987, John White in 1988, and Joseph D. Balachowski in 1989. The written documentation was prepared by Richard A. Bernstein of Cornell University in 1987.

PART IV. SOURCES OF INFORMATION

The repository of nearly all of the sources of information is the Reference Library and Preservation Office, Scotty's Castle, Death Valley National Monument, California. Individual references take the form of endnotes, as follows:

1. Letter from M. Roy Thompson to Albert M. Johnson dated January 20, 1929. Manuscript 7, box 7.

2. Letters from M.Roy Thompson to Albert M. Johnson dated March 3, 1929 and March 21, 1929. Manuscript 7, box 7.

3. "We will have our 45 h.p. Diesel engine in operation on Saturday November 22 or possibly a few days before. this will give us adequate power for organ-blower and organ." Letter from Albert M. Johnson to J.H. Nuttal. Manuscript 7, box 12.

4. The first floor of the "Annex" built sometime in 1926 was originally known as the "Cellar." See architectural drawings, catalogue nos. 21297, 21298, 21299, 21308 21309. The easternmost room was used basically for storage and often referred to as the "Commissary" The structure as a whole was sometimes called the "Commissary Building." See architectural drawings, catalogue nos. 21318, 21319, 21332. Once the "Guest House" and "Music Room" were added and the entirety was remodeled in the prevalent "Spanish Mediterranean" style it became known as the "Annex."

5. See architectural drawing, catalogue no. 21328.

6. These batteries all still survive in their original location, although they are no longer functional.

7. A letter from M. Roy Thompson to Albert Mussey Johnson dated October 17, 1929. Manuscript 7, box 9.

> I believe we ought to figure on getting a small power shovel at once, . . . One of these shovels will do the work of from 15 to 50 men . . . They are excellent for building side-hill roads and all other forms of excavation.

8. See architectural drawings catalogue nos. 21272, 21273, 21274, 21275, 21276, 21277, 21278, 21279, 21280, 21281, 21282, 21283, 21284, 21285, 21286, 21287, 21288.

9. Hank Johnston, Death Valley Scotty (Corona del Mar, California: Trans-Anglo Books, 1974), 118, has a photograph of Johnson in the Power Room probably shortly after construction was completed and shows the three original generators.

10. One possible cause for this divergence from the established styling motifs might have been the hiring of Martin de Dubovay. Johnson introduced himself to de Dubovay in a shop in Los Angeles after noticing his European accent and that he was carrying architectural drawings. Later Johnson was impressed with de Dubovay's knowledge of Medieval architecture. De Dubovay began work in MacNeilledge's studio as a draftsman in December 1928. This coincides with the date of many of the drawings of the Power House and Chimes Tower. Oral interviews with de Dubovay in 1972 and 1978, on file in the library at Scotty's Castle, quote him as claiming the design for the Power House and the Chimes Tower as his own. His accounts, however, are not conclusive and at times contradictory to other available evidence. For instance, although he claims the design of the Chimes Tower, designs were prepared in 1927, at least one year before de Dubovay was hired. His influence might have been felt in the addition of certain Medieval elements, such as the machicolation supporting the exterior stairway and the Romanesque columns of the bedroom entry porch.

A second possibility exists. MacNeilledge had returned from a trip to Europe in October 1929. It was during this trip that he bought many of the furnishings and tiles that now decorate the Ranch. Perhaps his ideas and designs for the Ranch changed radically after he returned. Other designs, such as the Entrance Gates, if finished, would also have been very different from everything before.

ADDENDUM TO:
DEATH VALLEY RANCH, POWER HOUSE
Death Valley National Park
Death Valley vicinity
Inyo County
California

HABS No. CA-2257-E
CAL,14-DVNM,1-E-

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